

Developing (Improving) Physical Education Benchmarks: A Preliminary Investigation using Two Standardized Test Instrument



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ABSTRACT

The goal of Physical Education Lesson in Malaysia is to assist pupils to become fit through physical activity session and fitness practice. After undergo a period of PE lesson, descriptions on what students should know and, be able to do within a particular movement skills or sport skills is essential to reveal the standard of the program or the curriculum. This study is a preliminary investigation in order to develop the national standard of movement skills achievement in Malaysia Physical Education Curriculum. A study to investigate the expected or required level of movement performance is performed. Two Standardized Test Instrument, McCarron Assessment Neuromuscular Development (MAND) and Talent Identification Test (TI) were used to identify fine and gross motor skills of Malaysian young adolescents. Three hundred and thirty students (165 boys, and 165 girls,) age = 13.4, \pm .99 involved in this study. Comparison on five fine motor skill items and five gross motor skills of Malaysian young adolescents with the developed normative data indicated that Malaysian young adolescents scored above average on fine motor skill but scored lower average on gross motor skill as compared to American Population (MAND test). Malaysian young adolescents show below average on the TI test. Results indicated that a culturally appropriate benchmark of Physical Education is essential to portray Malaysian movement skills level/ability. In addition by developing the benchmark of the curriculum can always be monitored.

INTRODUCTION

- ◆ Physical Education goal is to assist the students to become fit through Physical Education Lesson and fitness practice (Pusat Pendidikan Kurikulum, 2004).
- ◆ through physical activity session and learning sports skills.

PE in Malaysia

- ◆ Current assessment
 - Physical/Fitness test – UKFM
 - Cognitive test
- ◆ What about – movement skill and sports skills?
- ◆ In addition – Does PE Curriculum has a **standard achievement** of physical/fitness levels, cognitive levels, movement and sports skills at developmentally appropriate class/category/grade?

💡 **Benchmarks** – A translation of a standard into what the students should understand and be able to do at developmentally appropriate levels (e.g., Year 1, Year 6, Form 3, Form 5) (*North Dakota Physical Education Achievement Standards*)

💡 **Important components**

- **Content Standards**
- **Achievement Standard**

💡 **Content Standards** – a description of what students should know and be able to do within a particular discipline or content domain.

💡 **Achievement Standard** – the expected or required level of student performance or understanding.

- Provide student with **expectations** about what will be assessed as well as **standards** that need to be met.
- Increase **consistency** in the rating of achievements.
- Provide **information** about where students are in relation to where they need to be.

**HURAIAN SUKATAN PELAJARAN PENDIDIKAN JASMANI
TINGKATAN I**

TUNJANG PEMBELAJARAN 1 : KECERGASAN

BIDANG / UNIT PEMBELAJARAN	HASIL PEMBELAJARAN	CADANGAN AKTIVITI PEMBELAJARAN
<p>1. Kecergasan Fizikal</p> <p>(a) Daya Tahan Kardiovaskular</p> <p>Daya tahan kardiovaskular bermaksud kecekapan jantung, salur darah dan sistem pernafasan untuk membekalkan oksigen kepada otot secara berterusan pada jangka masa yang panjang semasa latihan.</p> <p>(i) Cadangan Aktiviti:</p> <ul style="list-style-type: none"> • Senamrobik 20 minit. • Berlari dan berjalan pantas 15 minit. • Skipping 15 minit <p>(ii) Kaedah latihan</p> <ul style="list-style-type: none"> • Prinsip latihan • Prosedur latihan <p>(iii) Faedah latihan</p>	<p>Murid dapat :</p> <p>Aras 1</p> <ul style="list-style-type: none"> • Melakukan langkah-langkah keselamatan dalam melaksanakan aktiviti daya tahan kardiovaskular. • Melakukan sekurang-kurangnya dua aktiviti daya tahan kardiovaskular. <p>Aras 2</p> <ul style="list-style-type: none"> • Menyatakan perasaan semasa melakukan aktiviti daya tahan kardiovaskular. • Menyatakan tiga organ yang terlibat dalam membekalkan oksigen kepada otot semasa aktiviti daya tahan kardiovaskular • Menyatakan otot utama yang terlibat dalam aktiviti daya tahan kardiovaskular. <p>Aras 3</p> <ul style="list-style-type: none"> • Menjelaskan kaedah dan faedah latihan daya tahan kardiovaskular • Menilai kecergasan daya tahan kardiovaskular melalui kadar nadi. 	<p>Guru boleh merujuk cadangan berikut bagi mencapai hasil pembelajaran. Guru juga boleh mencadangkan aktiviti pembelajaran lain mengikut kebolehan murid.</p> <ul style="list-style-type: none"> • Melakukan aktiviti daya tahan kardiovaskular secara individu dan berpasangan. • Melabelkan organ-organ yang terlibat dalam membekalkan oksigen kepada otot semasa aktiviti daya tahan kardiovaskular. • Membincangkan aspek-aspek keselamatan yang perlu diambil kira dalam melakukan aktiviti daya tahan kardiovaskular. • Membincangkan kaedah dan faedah latihan daya tahan kardiovaskular.

**HURAIAN SUKATAN PELAJARAN PENDIDIKAN JASMANI
TINGKATAN II**

TUNJANG PEMBELAJARAN 1 : KECERGASAN

BIDANG / UNIT PEMBELAJARAN	HASIL PEMBELAJARAN	CADANGAN AKTIVITI PEMBELAJARAN
<p>1. Kecergasan Fizikal</p> <p>(a) Daya Tahan Kardiovaskular</p> <p>Daya tahan kardiovaskular bermaksud kecekapan jantung, salur darah dan sistem pernafasan untuk membekalkan oksigen kepada otot secara berterusan pada jangka masa yang panjang semasa latihan.</p> <p>(i) Cadangan Aktiviti:</p> <ul style="list-style-type: none"> • Latihan par course • Latihan fartlek <p>(ii) Kaedah latihan</p> <ul style="list-style-type: none"> • Prinsip-prinsip latihan • Prosedur latihan <p>(iii) Faedah latihan</p>	<p>Murid dapat :</p> <p>Aras 1</p> <ul style="list-style-type: none"> • Melakukan langkah-langkah keselamatan dalam melaksanakan aktiviti daya tahan kardiovaskular. • Menyatakan maksud daya tahan kardiovaskular, latihan par course dan latihan fartlek • Melakukan sekurang-kurangnya satu aktiviti daya tahan kardiovaskular dengan kaedah yang betul. • Mengenal pasti aktiviti-aktiviti yang terdapat dalam latihan par course dan latihan fartlek <p>Aras 2</p> <ul style="list-style-type: none"> • Menyatakan dua faedah latihan par course dan latihan fartlek. 	<p>Guru boleh merujuk cadangan berikut bagi mencapai hasil pembelajaran. Guru juga boleh mencadangkan aktiviti pembelajaran lain mengikut kebolehan murid.</p> <ul style="list-style-type: none"> • Melakukan aktiviti daya tahan kardiovaskular. • Menyediakan folio individu berkaitan dengan aktiviti latihan par course dan latihan fartlek. • Menunjukkan cara mengambil dan mengira kadar nadi sebelum dan selepas aktiviti daya tahan kardiovaskular. • Menamakan lima otot utama yang terlibat dalam aktiviti daya tahan kardiovaskular. • Membincangkan fungsi organ-organ yang terlibat dalam aktiviti daya tahan kardiovaskular

**HURAIAN SUKATAN PELAJARAN PENDIDIKAN JASMANI
TINGKATAN III**

TUNJANG PEMBELAJARAN 1 : KECERGASAN

BIDANG / UNIT PEMBELAJARAN	HASIL PEMBELAJARAN	CADANGAN AKTIVITI PEMBELAJARAN
<p>1. Kecergasan Fizikal</p> <p>(a) Daya Tahan Kardiovaskular</p> <p>Daya tahan kardiovaskular merujuk kepada kecekapan jantung, salur darah dan sistem pernafasan untuk membekalkan oksigen kepada otot secara berterusan pada jangka masa yang panjang semasa latihan.</p> <p>(i) Cadangan Aktiviti:</p> <ul style="list-style-type: none"> • Parlov • Larian Piramid • "Jump rope" <p>(ii) Kaedah latihan</p> <ul style="list-style-type: none"> • Prinsip-prinsip latihan • Prosedur latihan <p>(iii) Faedah latihan</p> <p>(iv) Aspek-Aspek Keselamatan:</p> <ul style="list-style-type: none"> • Latihan yang sistematik • Mengenal pasti kemampuan tahap dan kecergasan murid 	<p>Murid dapat :</p> <p>Aras 1</p> <ul style="list-style-type: none"> • Melakukan langkah-langkah keselamatan dalam melaksanakan aktiviti daya tahan kardiovaskular. • Menyatakan maksud daya tahan kardiovaskular, parlov, "jump rope", dan larian piramid. • Melakukan sekurang-kurangnya satu aktiviti daya tahan kardiovaskular dengan kaedah yang betul. <p>Aras 2</p> <ul style="list-style-type: none"> • Menyatakan kesan terhadap kesihatan individu akibat penglibatan dalam aktiviti daya tahan kardiovaskular. • Menyatakan kaedah latihan dan faedah latihan daya tahan kardiovaskular. <p>Aras 3</p> <ul style="list-style-type: none"> • Menjelaskan perubahan kadar nadi sebelum dan selepas melakukan latihan kardiovaskular. • Mengenal pasti otot-otot utama yang terlibat dalam aktiviti daya tahan kardiovaskular. 	<p>Guru boleh merujuk cadangan berikut bagi mencapai hasil pembelajaran. Guru juga boleh mencadangkan aktiviti pembelajaran lain mengikut kebolehan murid.</p> <ul style="list-style-type: none"> • Melakukan aktiviti daya tahan kardiovaskular secara individu dan berkumpulan. • Menyediakan folio individu berkaitan dengan aktiviti parlov, larian piramid dan "jump rope". • Membincangkan kesan latihan daya tahan kardiovaskular terhadap kesihatan individu. • Menunjuk cara mengambil dan mengira kadar nadi sebelum dan selepas aktiviti daya tahan kardiovaskular. • Mengira kadar nadi latihan. • Menamakan otot utama yang terlibat dalam aktiviti daya tahan kardiovaskular.

**HURAIAN SUKATAN PELAJARAN PENDIDIKAN JASMANI
TINGKATAN IV**

TUNJANG PEMBELAJARAN 1 : KECERGASAN

BIDANG / UNIT PEMBELAJARAN	HASIL PEMBELAJARAN	CADANGAN AKTIVITI PEMBELAJARAN
<p>1. Kecergasan Fizikal</p> <p>(a) Daya Tahan Kardiovaskular</p> <p>Daya tahan kardiovaskular bermaksud kecekapan jantung, salur darah dan sistem pernafasan untuk membekalkan oksigen kepada otot secara berterusan pada jangka masa yang panjang semasa latihan.</p> <p>(i) Cadangan Aktiviti:</p> <ul style="list-style-type: none"> • Merentas desa • Senamrobik • Berjalan pantas 2-3 km • Latihan litar <p>(ii) Kaedah.</p> <ul style="list-style-type: none"> • Prinsip-prinsip latihan • Prosedur aktiviti <p>(iii) Faedah latihan</p> <p>(iv) Sistem Pengaliran Darah</p> <p>(v) Alatan latihan kecergasan.</p> <p>(vi) Kepentingan daya tahan kardiovaskular.</p>	<p>Murid dapat :</p> <p>Aras 1</p> <ul style="list-style-type: none"> • Menyatakan maksud daya tahan kardiovaskular. • Mengenalpasti aktiviti daya tahan kardiovaskular. • Menyatakan kaitan antara sistem peredaran darah dan sistem jantung. • Melakukan sekurang-sekurangnya dua aktiviti daya tahan kardiovaskular. <p>Aras 2</p> <ul style="list-style-type: none"> • Memilih alatan yang sesuai untuk digunakan semasa aktiviti daya tahan otot • Menjelaskan kepentingan aktiviti daya tahan kardiovaskular. <p>Aras 3</p> <ul style="list-style-type: none"> • Menghuraikan kesan fisiologi hasil daripada latihan daya tahan kardiovaskular. 	<p>Guru boleh merujuk cadangan berikut bagi mencapai hasil pembelajaran. Guru juga boleh mencadangkan aktiviti pembelajaran lain mengikut kebolehan murid.</p> <ul style="list-style-type: none"> • Melakukan aktiviti daya tahan kardiovaskular secara individu dan berkumpulan. • Membincangkan aspek-aspek keselamatan dalam aktiviti daya tahan kardiovaskular. • Membincangkan kaitan antara sistem peredaran darah dan sistem pernafasan dalam aktiviti daya tahan kardiovaskular. • Membincangkan kesan fisiologi hasil daripada latihan daya tahan kardiovaskular secara kumpulan. • Melayari laman web berkaitan dengan latihan daya tahan kardiovaskular.

STANDARD 4: MAINTAINING PHYSICAL FITNESS*

Students understand how to maintain a health-enhancing level of physical fitness.*

4.4.1 *Understand the relationship between regular participation in physical activity and physical fitness*.*

Level 4: student analyses the relationship between regular participation in physical activity and physical fitness*.

Level 3: student demonstrates the relationship between regular participation in physical activity and physical fitness*.

Level 2: student has some difficulty demonstrating the relationships between regular participation in physical activities and physical fitness*.

Level 1: student is unable to demonstrate the relationships between regular participation in physical activity and physical fitness*.

4.4.2 *Understand how to apply fitness assessment to set personal fitness goals.*

Level 4: student creates a personal fitness goal applying assessments.

Level 3: student identifies personal fitness goals by using the fitness assessments process to set personal fitness goals.

Level 2: student has difficulty in identifying the assessment process to set personal fitness goals.

Level 1: student is unable to identify the assessment process to set personal fitness goals.

4.4.3 *Understand the relationship between physical activity and physiological changes*

Level 4: student can explain the different concepts of physical fitness and their positive relationship to physiological changes.

Level 3: student can identify the physiological changes that occur as a result of physical activity.

Level 2: student has some consistencies in identifying the physical activity that occurs as a result of physiological changes.

Level 1: student is unable to identify the relationship between physical activity that occurs as a result of physiological changes.

Eg: North
Dakota
Standard and
Benchmarks
–
Achievement
Standards
Physical
Education
2000

Benchmarking

- ◆ The purpose of benchmarking is to be an indicator of the
"Improving ourselves by learning from others".
(Source: *The European Benchmarking Code of Conduct*)

- ◆ usually encompasses:
 - regularly comparing aspects of performance (functions or processes) with best practitioners;
 - identifying gaps in performance;
 - seeking fresh approaches to bring about improvements in performance;
 - following through with implementing improvements; and
 - following up by monitoring progress and reviewing the benefits. (http://www.benchmarking.gov.uk/about_psbps/thepsbs.asp)

Methods

- ◆ **Sample** : 330 secondary school students (165 boys and 165 girls).
- ◆ Age M=13.4 years girls and M=13.1 years boys.
- ◆ **Instruments**
 - ◆ *McCarron Assessment of Neuromuscular Development (MAND) Test* (McCarron, 1982) – 5 fine motor and 5 gross motor items
 - ◆ *Talent Identification (TI) Test* (Australia Sports Commission, 1998) – 4 test items

Instruments

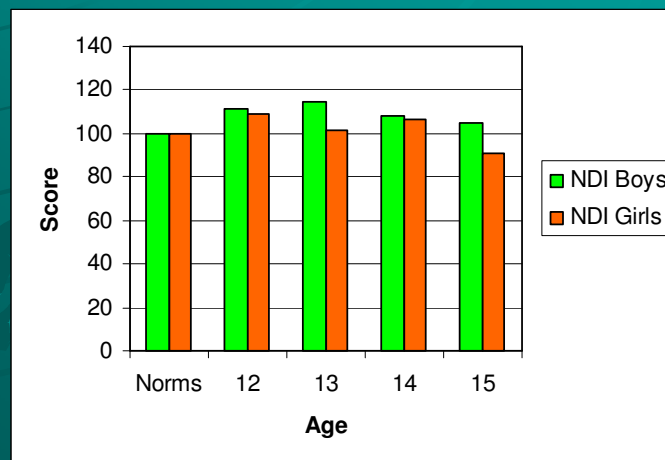
1. *McCarron Assessment of Neuromuscular Development (MAND) Test* (McCarron, 1982).
 - Fine motor items - beads in box, beads in rod, finger tapping, nut and bolt and rod slide.
 - Gross motor items - hand strength, finger-nose finger movements, jumping, heel-toe tandem walking, and standing on one foot.
2. *Talent Identification (TI) Test* (Australia Sports Commission, 1998)
 - 40 m sprint, vertical jump test, basketball throw and multistage fitness test (MSFT).

Results MAND test

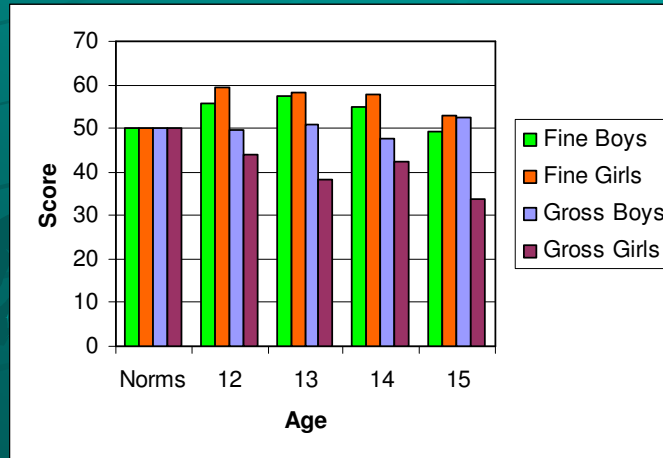
Table 1: Mean and Standard Deviation of NDI Scores, Fine Motor Average and Gross Motor Average of MAND Test Items

Variables	Age (years)	Boys		Girls	
		Mean	S.D	Mean	S.D
NDI	12	111.2	15.11	108.8	11.93
	13	114.5	14.60	101.7	15.59
	14	108.0	16.31	106.2	17.44
	15	104.9	13.64	91.2	10.10
Fine Motor Average	12	55.6	8.48	59.5	5.66
	13	57.5	8.50	58.3	8.22
	14	54.8	8.95	57.8	9.17
	15	49.3	6.10	53.1	7.53
Gross Motor Average	12	49.6	8.26	43.9	8.11
	13	50.7	8.10	38.2	9.51
	14	47.5	9.15	42.2	12.44
	15	52.5	8.78	33.8	8.00

NDI Score of MAND test



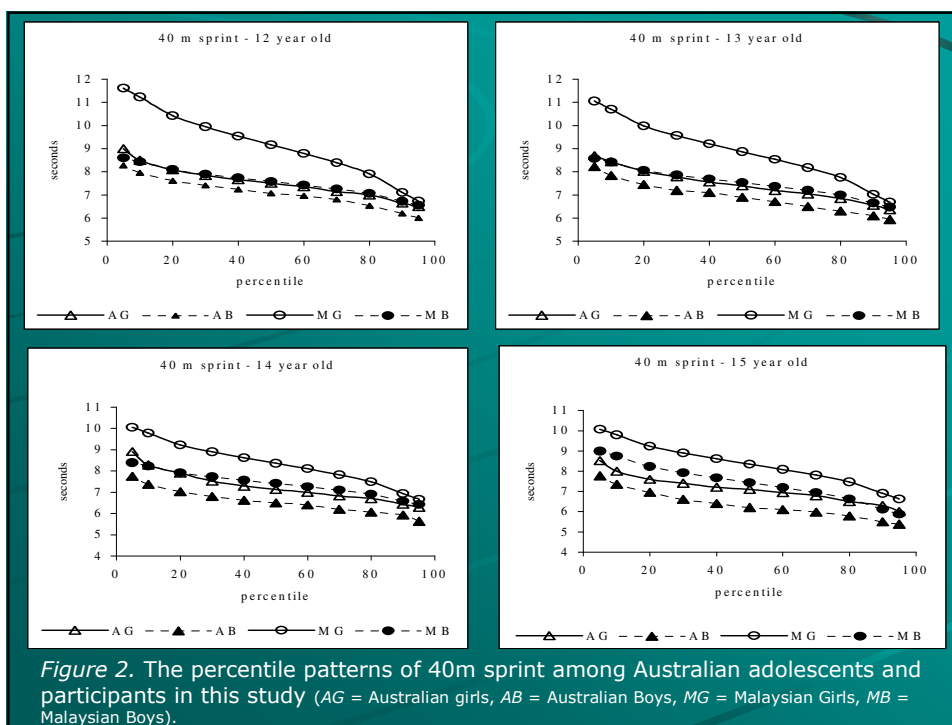
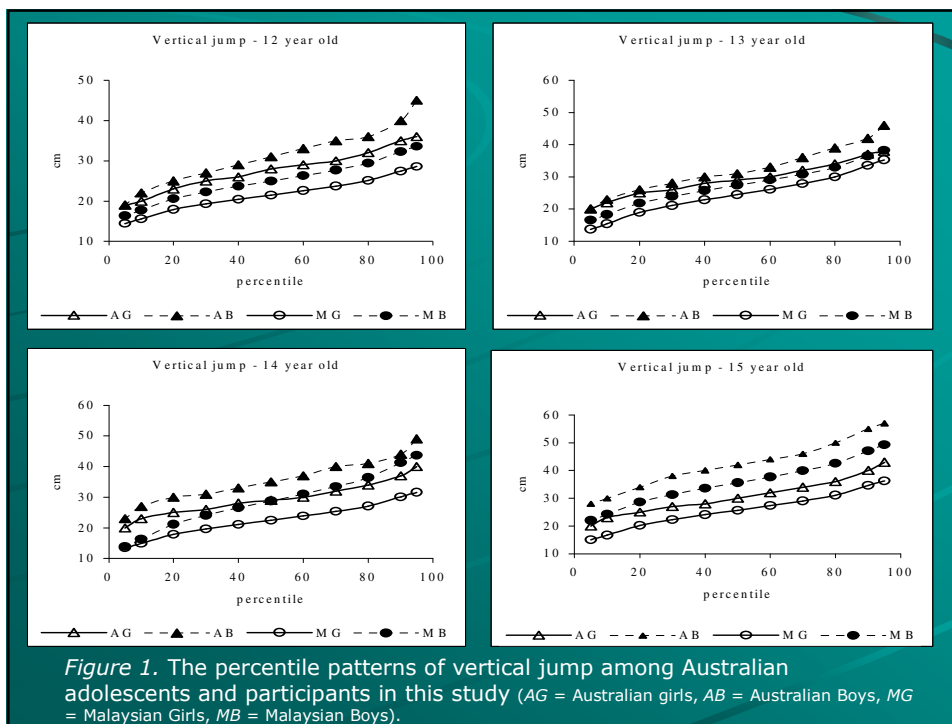
Fine and Gross Motor Average

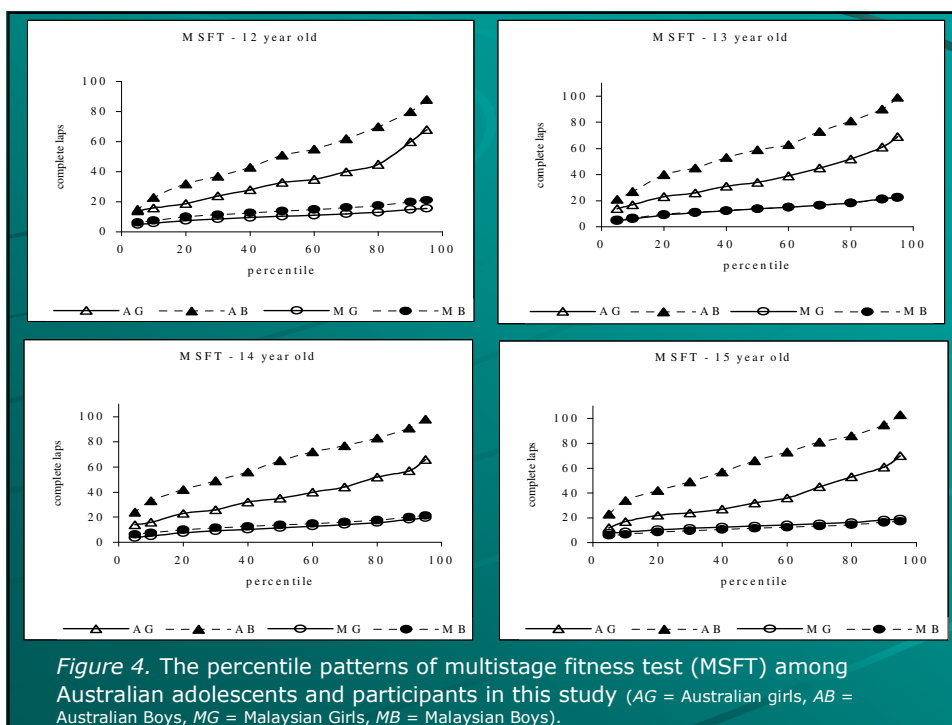
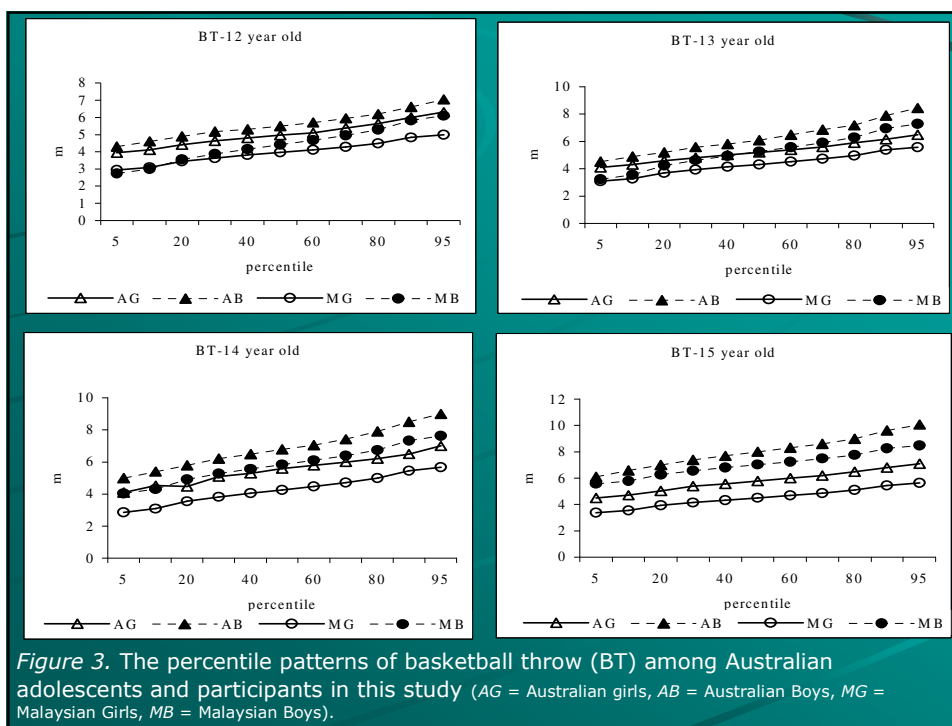


Results TI test

Table 2: Mean and Standard Deviation of AIS Test Items

Variables	Age (years)	Boys		Girls	
		Mean	S.D	Mean	S.D
Basketball Throw	12	4.41	1.03	3.96	.63
	13	5.26	1.23	4.33	.76
	14	5.83	1.09	4.27	.86
	15	7.02	.89	4.51	.69
Vertical Jump	12	24.98	5.25	21.51	4.30
	13	27.40	6.59	24.50	6.56
	14	28.80	9.04	22.51	5.51
	15	35.63	8.29	25.68	6.49
40m sprint	12	7.58	.62	9.17	1.49
	13	7.53	.64	8.87	1.33
	14	7.41	.60	8.36	1.03
	15	7.43	.95	8.35	1.05
Multistage Fitness Test (MSFT)	12	13.87	4.50	10.43	3.25
	13	13.91	5.17	13.76	5.53
	14	13.88	4.56	11.64	4.76
	15	11.56	3.48	13.40	3.50





Conclusions

- ❖ *Comparison on five fine motor skill items and five gross motor skills of Malaysian young adolescents with the developed normative data indicated that Malaysian young adolescents scored **above average on fine motor skill** but scored **lower average on gross motor skill** as compared to American Population (MAND test).*
- ❖ *Malaysian young adolescents show below average on the TI test.*

Conclusions

- ❖ *Results indicated that a culturally appropriate benchmark of Physical Education is essential to portray Malaysian movement skills level/ability.*
- ❖ *In addition by developing the benchmark, the curriculum can always be monitored.*

